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OSTODOLEPIS BREVISPINATUS, A NEW REPTILE FROM THE PERMIAN OF TEXAS

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In the summer of 1909 the writer found, on West Coffee Creek in Willsbarger County, Texas, a series of seven articulated vertebrae and their connected ribs, for the most part concealed in a small block of red sandstone. At the time of their discovery a new genus of reptiles was recognized in the specimen, but only recently has the opportunity for its further examination presented itself. The removal of the concealing matrix has revealed certain unique characters that will justify the description of the well-preserved, though incomplete specimen.

The vertebrae resemble those of *Araeoscelis* more closely than those of any other form hitherto made known from the Permocarboniferous deposits of America. They also seem to resemble those of *Tomicosaurus* Case, so far as their arches are concerned—the centra are unknown in the latter genus—but differ in the presence of stout diapophyses and much greater size. The centra of *Ostodolepis* are as broad as long. The ends, as usual, are deeply and conically concave, with a small perforating foramen. The under side is gently concave longitudinally, broad from side to side, and gently concave in the middle transversely. Just above the sides of the nearly square under surface there is a shallow lateral fossa near the middle. The arch is low and flattened, broad from side to side, though not at all cotylosaurian in character, and has a very small, almost vestigial, tuberculiform spine. The zygapophyses are broad and flat, and their articular surfaces look almost directly upward and downward. On the lower part of the arch on each side, near the front end of the vertebra, there is a rather stout, but short, diapophysis, directed outward and a little downward and backward, with its free end oval in outline and gently cupped. Unlike any centra from Texas hitherto observed by the writer, those of the present specimen on their free surface show numerous, irregularly placed, minute pits leading into nutrient canals.

The ribs, for the most part, are preserved in position. Each has a rather prominent and stout tubercle lying in apposition with the end of a diapophysis; and the capitulum lies in the intercentral space below the middle of the vertebra, and near the end of the very slender intercentrum. The fractured ends of the ribs show a small central cavity filled with crystals.

The block of matrix, as discovered, showed along its fractured edges, nearly parallel with the under side of the vertebrae, two series of overlapping, slender, bony lines, which were first supposed to be merely imbricated ventral ribs, though the absence of fractured ends was inexplicable. When the lateral surfaces were cleared of matrix these lines were found to be the fractured edges of bony plates. These lines lie along the broken edge of the block in very orderly arrangement, their inner, posterior ends about one millimeter apart; they are directed obliquely forward and outward. Each line measures about eight millimeters in length, and is of about the thickness of writing paper; they lie closely upon each other and are straight. The external, anterior, and very thin margins of these scutes are directed forward, a remarkable arrangement. None of the scutes can be laid bare completely, but the numerous ones seen on the surface below the vertebrae show a width of each approximating its length. The angles are broadly rounded. The outer surface seems to show shallow concentric grooves, possibly corresponding to the free margins of the overlying scutes, of which there are about six. Under a hand lens they show very distinct, slender raised lines, quite concentric with the free margin. In general the scutes resemble the cycloidal scales of bony fishes.

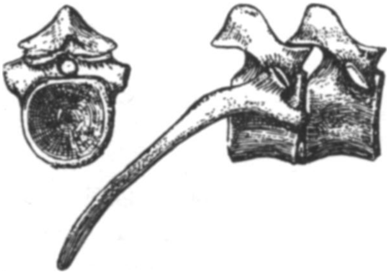

FIG. 1.—*Ostodolepis brevispinatus* Williston. Posterior dorsal vertebrae from the side and in front, with articulated rib. Natural size.

The surface showing these scutes, as exposed on each side, is about an inch and a quarter in width, and must have been originally at least a half-inch wider. The scutes continue quite to the vertebrae, ascending a short distance on their sides, and over the ends of the posteriorly directed ribs. It would seem very probable that, after decomposition of the body had begun, the skin bearing these scutes had slipped down from the ribs and vertebrae till it came nearly in contact on the two sides. No trace of the scutes, however, was found in the matrix over the arches of the vertebrae.

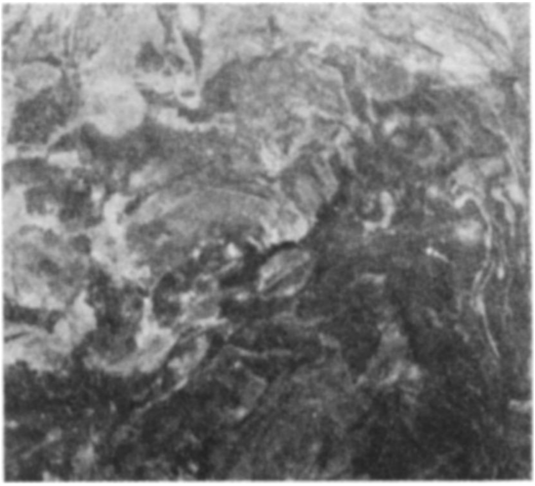

FIG. 2.—*Ostodolepis brevispinatus*. Scutes of right side. Enlarged.

Whether or not these scutes originally covered the whole of the body can not be determined in this specimen, though it is quite evident that they covered the whole under surface of the abdomen as high up as the vertebrae, in the living animal. The vertebrae are evidently from the posterior dorsal region. Such bony scutes, whether they be ventral only or not, are wholly unlike anything that has hitherto been observed among the Permocarboniferous reptiles of America, and very unlike the slender ventral ribs which have been observed in other genera, such as *Labidosaurus*, *Captorhinus*, *Poecilospondylus*, *Varanosaurus*, *Ophiacodon*, etc. In all these genera these ribs appear to be continuous, directed backward, outward and upward from the median line back of the coracoids, and they are not at all imbricated. In this remarkable specimen they lie everywhere in five or six imbricated layers directed obliquely forward and outward, the thin external edges about one millimeter or a little more apart. Such an arrangement, if they be dermal structures, must certainly have been inconvenient for a crawling creature, unless it were descending a tree! And this leads to the conclusion that these scutes, notwithstanding their close imbrication and fish-like appearance, must have been ossifications in the connective tissue, and overlaid by the skin in life.

The very short spines, the broad and flat zygapophyses and strong rib attachments suggest a slender lizard-like form for the living animal, one probably with long legs and prehensile feet, cursorial or climbing in habit.

The name *Trispondylus* Williston (this Journal, XVIII, 592) is preoccupied; it may be replaced by *Trichasaurus*, nom. nov.